



# 515-G Series Low Frequency Loudspeakers



## KEY FEATURES

- ★ High Power Handling
- ★ High Efficiency
- ★ Extended Response

The Altec Lansing **515-G Series** loudspeakers are designed for unsurpassed performance when used in low frequency horn and vented horn enclosures. They are the highest performance low frequency drivers that Altec produces. When the ultimate in sound quality, efficiency, and response is needed, the **515-G Series** is the answer.

In-depth research into the properties of low frequency horns and vented horns has produced three drivers which are optimum for horn applications. When coupled with an appropriate horn, the **515-G Series** loudspeakers provide the best possible combination of wide response, high efficiency, low distortion, and directivity control.

The **515-G Series** loudspeakers incorporate Altec's largest magnet structure, an edgewound aluminium flatwire voice coil, a light cone assembly, and a low distortion cloth suspension.

## KEY SPECIFICATIONS

Type (all models): 16.0 inch (40.6 cm) low frequency horn loudspeaker.

	<b>515-8G</b>	<b>515-16G</b>	<b>515-8GHP</b>
Power Rating*: 75 watts (25 volts)	75 watts (35 volts)	200 watts (40 volts)	

### Frequency Response\*\*:

Enclosure:			
828G:	50 to 4000 Hz	55 to 4000 Hz	60 to 4000 Hz
816A:	60 to 4000 Hz	65 to 4000 Hz	70 to 4000 Hz
817A:	55 to 4000 Hz	60 to 4000 Hz	65 to 4000 Hz
210/211:	40 to 4000 Hz	50 to 4000 Hz	50 to 4000 Hz

### Highest Recommended Crossover

Frequency (all models): 2500 Hz.

### Sensitivity\*\*\*:

Enclosure:			
828G:	103 dB	104 dB	104.5 dB
816A:	102 dB	103 dB	103.5 dB
817A:	104.5 dB	105.5 dB	106 dB
210/211:	107 dB	108 dB	108.5 dB

Impedance: 8 ohms 16 ohms 8 ohms

## DESCRIPTION

The **515-8G** and **515-16G** carry on the Altec Lansing 515 tradition. The **515-8G** provides extended bass response and extremely high linearity for optimum performance in vented horn enclosures. The **515-16G** is intended for applications similar to those for the **515-8G**, but where 16 ohm impedance and increased sensitivity is needed, as in dual loudspeaker enclosures such as the Altec **210/211** and **817A** vented horns. Both loudspeakers are constructed of materials similar to 515's of earlier years to produce the sound made popular in theater and studio applications.

The **515-8GHP** is the most efficient loudspeaker Altec has ever produced. This, coupled with high power handling, yields a speaker capable of very high sound pressure levels and good reliability. The horn-loaded design of the **515-G Series** ensures that the **515-8GHP** performs optimally in all vented horn enclosures.



## SPECIFICATIONS (continued)

	515-8G	515-16G	515-8GHP
<b>Thiele/Small Parameters-</b>			
Voice Coil DC Resistance ( $R_e$ ):	6.2 ohms	11.3 ohms	5.6 ohms
Nominal Free-Air Resonance ( $f_s$ ):	37 Hz	37 Hz	37 Hz
Total Q ( $Q_{TS}$ ):	0.269	0.215	0.187
Mechanical Q ( $Q_{MS}$ ):	5.0	5.0	4.5
Electrical Q ( $Q_{ES}$ ):	0.284	0.225	0.195
Equivalent Volume Compliance ( $V_{AS}$ ):	12.4 ft <sup>3</sup> (351.1 L)	12.2 ft <sup>3</sup> (345.5 L)	12.1 ft <sup>3</sup> (342.6 L)
Reference Efficiency ( $\eta_0$ ):	6.0%	7.5%	8.6%
Peak Linear Displacement ( $X_{MAX}$ ):	0.17 inches (0.43 cm)	0.15 inches (0.38 cm)	0.12 inches (0.31 cm)
Peak Linear Volume Displacement ( $V_0$ ):	22.4 in <sup>3</sup> (367.1 cm <sup>3</sup> )	19.7 in <sup>3</sup> (322.8 cm <sup>3</sup> )	15.8 in <sup>3</sup> (258.9 cm <sup>3</sup> )
Effective Piston Area of Driver Diaphragm ( $S_d$ ):	131.5 in <sup>2</sup> (848.4 cm <sup>2</sup> )	131.5 in <sup>2</sup> (848.4 cm <sup>2</sup> )	131.5 in <sup>2</sup> (848.4 cm <sup>2</sup> )
Maximum Excursion Before Damage (Peak to Peak):	0.70 inches (1.8 cm)	0.70 inches (1.8 cm)	0.85 inches (2.2 cm)
Voice Coil Winding Depth:	0.20 inches (0.51 cm)	0.25 inches (0.64 cm)	0.31 inches (0.79 cm)
Magnetic Gap Depth:	0.47 inches (1.2 cm)	0.47 inches (1.2 cm)	0.47 inches (1.2 cm)
BI Factor (T-m):	16.4	25.1	19.1
Voice Coil Inductance:	0.58 mH	1.30 mH	0.68 mH
Voice Coil Diameter:	3.0 inches (7.6 cm)	3.0 inches (7.6 cm)	3.0 inches (7.6 cm)
Magnet Type:	ferrite	ferrite	ferrite
Magnet Weight:	132 oz. (3.74 kgs)	132 oz. (3.74 kgs)	132 oz. (3.74 kgs)
Magnetic Flux Density:	15,000 gauss	15,000 gauss	15,000 gauss
Voice Coil Type:	edge-wound aluminum ribbon	edge-wound aluminum ribbon	edge-wound aluminum ribbon
Frame:	Die-cast aluminum	Die-cast aluminum	Die-cast aluminum
<b>Mounting Information-</b>			
Baffle Opening Diameter:	14.1 inches (38.4 cm)	14.1 inches (38.4 cm)	14.1 inches (38.4 cm)
Mounting Bolt Circle Diameter:	15.0 inches (44.0 cm)	15.0 inches (44.0 cm)	15.0 inches (44.0 cm)
Loudspeaker Depth Rear Mounting:	6.7 inches (17.0 cm)	6.7 inches (17.0 cm)	6.7 inches (17.0 cm)
Front Mounting:	5.9 inches (14.9 cm)	5.9 inches (14.9 cm)	5.9 inches (14.9 cm)
Weight:	30 lbs. (13.6 kg)	30 lbs. (13.6 kg)	30 lbs. (13.6 kg)

\* AES power rating (measured Power =  $E^2/R$ , using Pink Noise with a crest factor of 6 dB and a band-limit of 60 to 600 Hz).

\*\* Low frequency limit is the 3 dB down point using the particular cabinet and the Thiele/Small parameters of the loudspeaker.

\*\*\* Measured in the free-field at 4.0 feet (1.2 m) on axis with one watt (Power =  $E^2/R$ ) of pink noise band-limited from 100 to 1000 Hz.

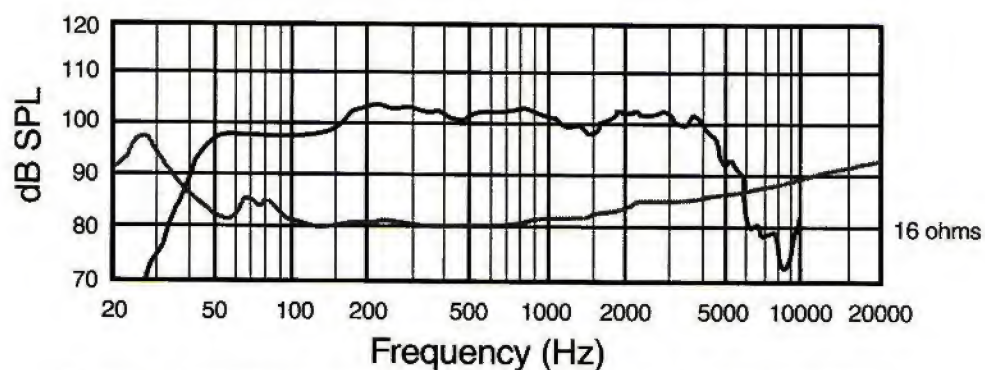


Figure 1: Frequency Response and Impedance of 515-16G in 828G Enclosure

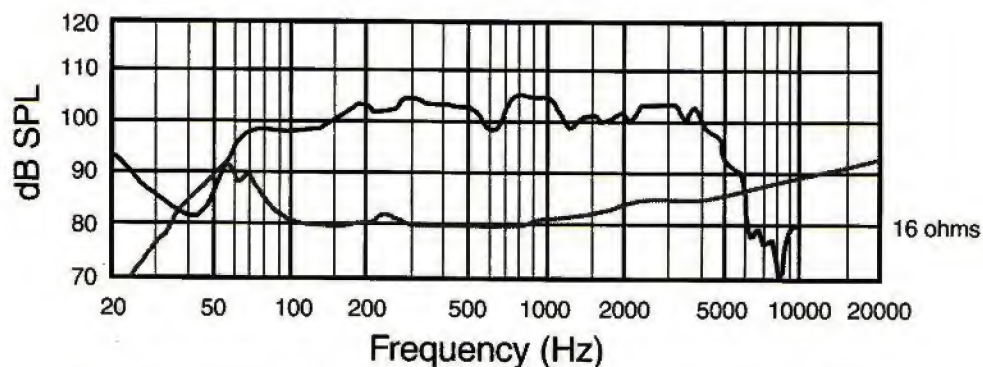


Figure 2: Frequency Response and Impedance of 515-16G in 816A Enclosure

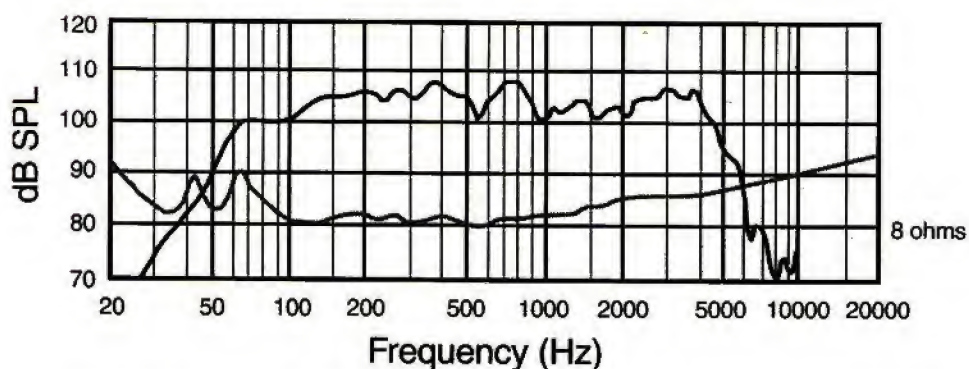


Figure 3: Frequency Response and Impedance of Two 515-16G's in 817A Enclosure

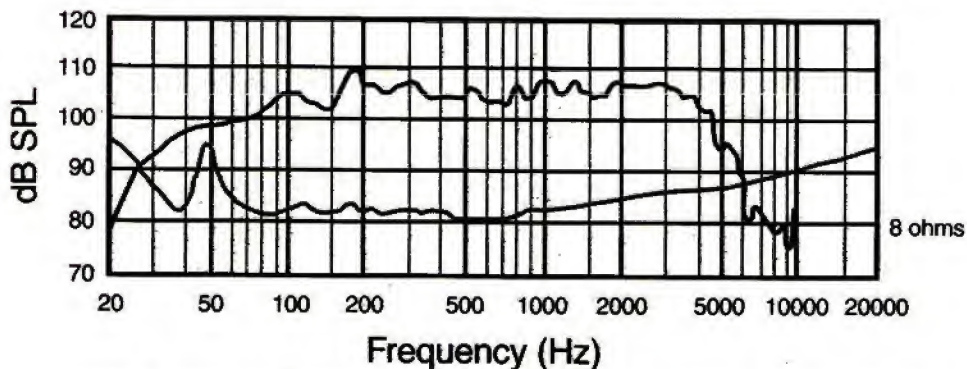
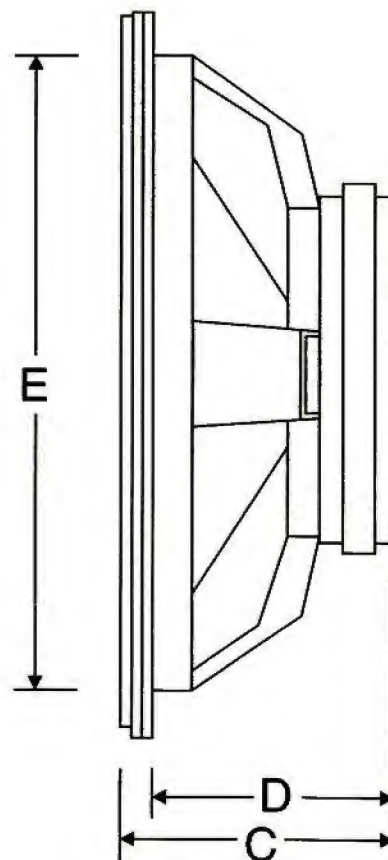
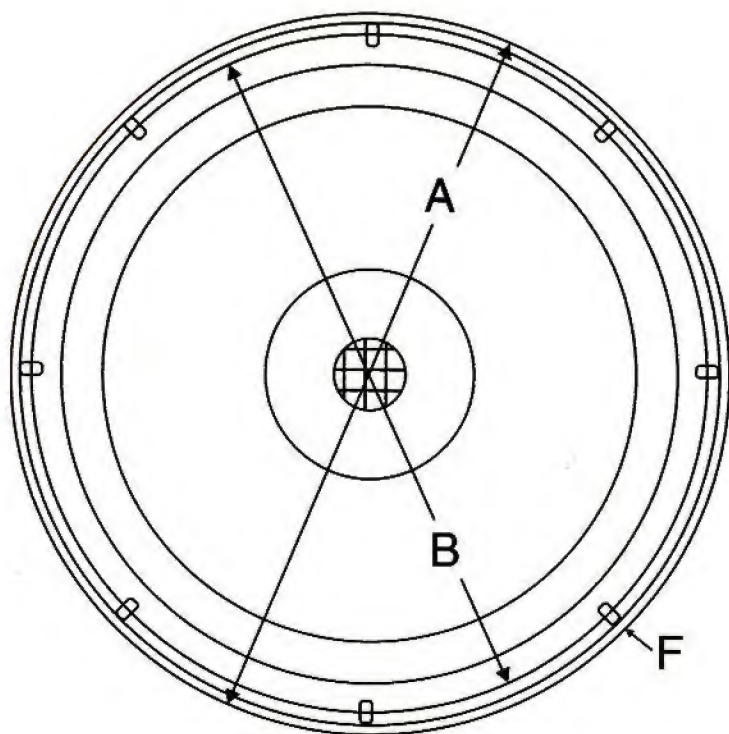


Figure 4: Frequency Response and Impedance of Two 515-16G's in 210A Enclosure





- (A) Loudspeaker Diameter: 16.0 inches (40.6 cm).  
 (B) Bolt Circle Diameter: 15.0 inches (38.1 cm).  
 (C) Depth When Rear Mounted: 6.7 inches (17.0 cm).

- (D) Depth When Front Mounted: 5.9 inches (14.9 cm).  
 (E) Baffle Opening Diameter: 14.1 inches (35.9 cm).  
 (F) Bolt Hole Slots: 0.25 inch (0.6 cm) x 0.75 inch (2.0 cm);  
 8 slots spaced 45° apart.

## ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The low frequency loudspeaker shall meet the following criteria. Power rating, up to \_\_\_\_\_ watts, measured  $E^2/R$ , using a crest factor of 6 dB and band-limited from 60 to 600 Hz. Frequency response, uniform from \_\_\_\_\_ to 4000 Hz when used in the \_\_\_\_\_ enclosure. Pressure sensitivity, \_\_\_\_\_ dB SPL when measured in the free field at 4.0 foot (1.2 m) on axis with 1 watt (power  $E^2/R$ ) of pink noise band-limited from 100 to 1000 Hz. Nominal impedance, \_\_\_\_\_ ohms. Nominal free air cone reso-

nance, 37 Hz. The voice coil shall be 3.0 inches (7.6 cm) diameter of edge-wound aluminum ribbon, driven by a 132 ounce (3.74 kgs) ferrite magnet structure having a flux density of 15,000 gauss. Dimensions, 16.0 inches (40.6 cm) diameter x 6.8 inches (17.3 cm) deep. Weight, 30 pounds (13.6 kgs).

The low frequency loudspeaker shall be the Altec Lansing Model \_\_\_\_\_.



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